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REMARKS

The Applicant has cancelled all previously pending claims and substituted therefore claims and substituted therefore claims 49-111. Applicant would like to thank Examiner Lien Tran for the courteous interview granted to Applicants' counsel, Mr. James A. Mitchell, on June 17, 2003. During the interview, Mr. Mitchell discussed with the Examiner the newly presented claims in light of the previously cited prior art, and in light of the four of the additional prior art references which are included with this response. The other newly cited references were discovered after the interview.

Applicant Cheree Stevens, and her husband John Stevens whose Declaration is included herewith, have many years of experience in the food technology industry. Cheree Stevens obtained her degree in food technology in 1982 from the University of Cardiff, Wales, UK. She has worked in the food industry since that time, and has worked in food coatings since becoming employed by Advanced Food Technologies, 1999. John Stevens obtained his degree in food science from Cornell University in 1970, and has worked in the food technology industry since that time. Since 1987 he has specifically worked with food coatings, first at Universal Frozen Foods, where he spearheaded Universal's first clear coated frozen french fries. He then worked as Director of Research at McCain Foods USA, Director of Development of Coatings for Miles Willard Company, Director of Research and Development at Newly Wed Foods, where he developed dry mixes to coat fries, and is currently employed as Vice President of Research and Development at Advance Food Technologies. (John Stevens Decl., pars. 1-7.)

Taken as a whole, the prior art emphasizes the importance of using corn starch in food coatings. John Stevens is an inventor on United States Patent 5,965,189, referred to in the "Background of the Invention" of this application. The '189 patent claims a coating of corn starch, corn flour and dextrin. The Sloan patents referred to in the "Background" of the present application, 5,141,759 and 5,095,435, disclose coatings of corn starch, potato starch

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and rice. Indeed, all of the coatings disclosed in the references referred to in the "Background of the Invention" incorporate corn starch. (John Stevens Decl., par. 11.)

Applicants are submitting herewith yet another prior art batter formula known to Applicants which employed 14% corn starch, dextrin, rice flour and other ingredients. (John Stevens Decl., par. 16, Exh. 4.) Newly submitted Rogols 6,022,569 (Exh. 5) employs corn starch in many of its examples, in that corn starch comprises 40% of "Crisp Coat® UC," the other 60% comprising tapioca dextrin. The newly cited Horn Patents 6,080,434 (Exh. 6) and 6,159,521 (Exh. 7) claim coatings comprising at least 2% by weight corn starch. The newly cited Friedman Patent 5,928,693 (Exh. 8) teaches a clear coat food coating which for all practical purposes comprises corn starch, i.e. starch from hybrid or genetically modified plant, which it is believed currently has only been done with maize. (John Stevens Decl., pars. 17-20, Exhs. 5-8.)

Given the widespread use of corn starch in the prior art, both John and Cheree Stevens were surprised at the outstanding crispness, mouth feel and hold time which Cheree Stevens had been able to achieve with a coating which was substantially free of corn starch, by using rice flour and dextrin within certain ranges and in certain proportions. (John Stevens Decl., par. 12.) Nor were any special starches from hybrid or genetically modified plants, preferably maize, required such as those disclosed in the coating of newly submitted Patent 5,928,693. (*Id*)

The newly submitted independent claims are all directed to food coating compositions comprising from about 25% to about 70% by weight of the combination of a rice component and a dextrin component, in a ratio of rice to dextrin of from about 1:2 to about 5:1, the composition being substantially free of corn starch, and substantially free of starches made from plants especially crossbred or modified to contain either the dull sugary 2 genotype (*dusu2*) or the amylose extender dull genotype (*aedu*). Some of the claims are directed to more preferred embodiments, wherein the rice to dextrin ratio is narrowed to from about 1:1 to about 5:1, or from about 2:1 to about 3.5:1, respectively. Other dependent claims emphasize preferred aspects of the invention such as the use of up to about 35% or 30% rice component, the use of a low-amylose potato starch in amounts of up to about 50% or from

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about 25% to about 45%, and the use of ingredients such as leavening and stabilizers.

The prior art fails to disclose or suggest a food coating composition or its use wherein the composition comprises from about 25% to about 70% by weight of the combination of a rice component and a dextrin component in a ratio of rice to dextrin of from about 1:2 to about 5:1, where said composition is substantially free of corn starch, and substantially free of starches made from plants especially crossbred or modified to contain either the dull sugary 2 genotype or the amylose extender dull genotype. The previously cited Higgins reference 5,976,607 discloses a food coating composition containing from about 25% to about 90% by weight corn starch. Previously cited Rogols et al. 5,897,898 emphasizes utilizing hydrolyzed starch having a dextrose equivalence of from about 0.2 to about 0.8, with corn and potato starch being "particularly preferred." While some of the examples use potato starch instead of corn starch, and while those examples include rice flour, they do not utilize dextrin (see Table 1, Table 3 and Table 4). While the formula of Table 3 includes rice flour and "maltodextrin," the Examiner concurred during the interview with the fact that maltodextrin is not "dextrin."

The newly cited Rogols Patent 6,022,569 (Exh. 5) discloses food coatings which employ at least 50%, preferably 60-70% rice flour. As noted above, corn starch is also included in the coatings disclosed in Tables 6-11, since corn starch comprises 40% of the content of "Crisp Coat® UC." (John Stevens Decl., pars. 17-19, and Exh. 9.) While tapioca dextrin is 60% of Crisp Coat® UC, the Examiner will see that the ratio of rice flour to dextrin in any of the examples in Tables 6-11 fall outside of the claimed range of the present application, i.e. a rice to dextrin ratio of from about 1:2 to about 5:1. It appears that the closest one comes to that ratio range is in the coatings of Tables 7 and 8 which employ 45% rice flour and 12% Crisp Coat® UC. The ratio of rice to dextrin in those examples is 6:1, and those examples also include approximately 5% corn starch. (*Id*)

The newly cited Horn Patents 6,080,434 (Exh. 6) and 6,159,521 (Exh. 7) emphasize the importance of using at least 2% by weight corn starch, and they specifically claim coating compositions using at least 2% by weight corn starch. The disclosures of the two patents are identical, '521 being a division of '434. One of ordinary skill in the art reading the Horn patents would conclude that these patents teach away from using a rice and dextrin-containing

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food coating which is "substantially free of corn starch." (John Stevens Decl., pars. 20-25.)

Nevertheless, Applicants wish to point out that some of the examples shown in the patent are superficially anticipating references. It is respectfully submitted, however, that when read in context, the said examples are not anticipatory at all, and instead teach away from the presently claimed invention.

Table 4-1 and 4-2 purport to disclose five different coatings containing 8.8% of potato starch acetylated at different levels, in a coating composition containing 36% of the combination of rice flour and tapioca dextrin in a ratio of 2:1. However when one reads Example 4 which describes the formulas disclosed in Tables 4-1 and 4-2, one sees the following description of the formulas:

"According to this example, crosslinked dent corn starches characterized by different levels of acetylation were tested as the secondary low swelling starch in french fry enrobing slurries to determine the optimum level of acetylation." (Col. 11, lines 23-36.)

Thus it is apparent to anyone of ordinary skill in the art that the reference to 8.8% acetylated "potato starch" is a typographical error, and that the starch used was actually a corn starch. (John Stevens Decl., par. 22.)

A similar error appears to have occurred in Table 3. Example 3, which refers to Table 3, states:

"According to this example, crosslinked dent corn starch was used to enhance the properties of dextrins in french fry coating formulations. ...These results show that crosslinked acetylated dent corn starch has the ability to enhance the crispness properties provided by dextrins. ...In addition, the results show that the combination of a low crosslinked (200 ppm) potato starch as a primary film forming starch with crosslinked corn starch as a secondary low gelling starch and a low solubility dextrin yields a smooth, crisp french fried potato product and that the use of the three components in combination provides improvements over the use of those ingredients individually and lowers the effective cross linking level required for the crosslinked potato starch as the primary starch." (Col. 10, lines 31-50.)

Table 3 lists various ingredients used in various test formulations, with two different types of

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potato starch being listed at the top of Table 3. After a listing of other ingredients, a 5% acetylated corn starch is listed, a crosslinked corn starch is listed, and then a 4% acetylated "potato starch" is listed. If the 4% acetylated potato starch were actually potato starch, then Formula 3C would respond to the broader claims of the present application in that the 3C formulation would be substantially free of corn starch and have rice flour and tapioca dextrin at 24 and 12% respectively. However, the examples make no sense unless the reference to 4% "potato" starch is a typographical error. The example is specifically comparing combinations of acetylated corn starch or non-acetylated corn starch with relatively high or relatively low crosslinked potato starches. It is respectfully submitted that one skilled in the art would read the reference to 4% acetylated "potato" starch as a typographical error and conclude that this was intended to refer to a 4% acetylated corn starch, thus placing a listing of three different corn starches at the bottom of Table 3 and two different potato starches at the top of Table 3. (John Stevens Decl., par. 23.)

Formulae 3G and 3H of Table 3 purport to be free of corn starch, such that they would respond to the broader claims of the present application. However, the Example 3 discussion says nothing about there being any comparative examples which are free of corn starch. Further, the various percentages of ingredients listed for Formulae 3G and 3H do not add up to 100%. The ingredients in 3G add up to 98.8% and those in 3H add up to 100.5%. There is nothing in the text of the Horn patents which indicates the absence of corn starch, nor is there anything in the text of the patent that ascribes any significance to Formulae 3G and 3H. If noticed at all by anyone of ordinary skill in the art reading this patent, Formulae 3G and 3H would, at most, be viewed as undesirable formulas and failed experiments in view of the emphasis of the Horn patents on the importance of using at least 2% corn starch. (John Stevens Decl., par. 24.)

That which a prior art reference teaches to one of ordinary skill in the art is a question of fact. *Ralston Purina Company v. Far-Mar-Co., Inc.*, 772 F.2d 1570, 1574, 227 USPQ 171, 179 (Fed. Cir. 1985); *ELF Atochem North America, Inc. v. Libbey-Owens-Ford Company, Inc.*, 894 F.Supp. 844, 860 (D.Del. 1995) (copy enclosed for the Examiner's convenience). In order to understand how one of ordinary skill in the art would view a

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reference, expert testimony may be required. *ELF Atochem, supra*. Given his extensive experience in the food coating technology art, it is respectfully submitted that the testimonial Declaration of John Stevens is material and pertinent. Mr. Stevens' testimony supports the conclusion that the Horn references teach away from the present invention.

The above references were all discussed with Examiner Tran during the interview. Subsequent to the interview, Applicants' counsel discovered United States Patent 5,928,693 (John Stevens Decl., par. 17, Exh. 8), and several references referred to therein. As a practical matter, the present claims distinguish the '693 patent by specifying a rice component and dextrin component food coating which is substantially free of corn starch. However, out of an abundance of caution, Applicants have also amended the independent claims to require that the food coating be "substantially free of starches from plants crossbred or modified to contain either the dull sugary 2 genotype for the amylose extender dull genotype. The '693 patent is directed to a food coating composition which contains from about 55% to about 85% by weight of an acetylated starch, having one or the other of the foregoing genotypes. The coating also contains these rice, flour and dextrin which in the examples, are present in the portions claimed.

As a practical matter, it is believed that the only starches available which contain either the dull sugary 2 genotype or the amylose extender dull genotype are genetically modified corn starches. (John Stevens Decl., pars. 17 and 26.) John Stevens includes a paper submitted by David V. Glover, Department of Agronomy, Purdue University (Exh. 10), which supports this conclusion.

Thus as a practical matter, the '693 patent is distinguished on the same basis as the other prior art discussed above, in that the food coating composition of the '693 patent is not "substantially free of corn starch." Indeed, the '693 patent indicates that corn is the preferred plant source for the starches, and that only corn contains the dull and sugary 2 genotypes. While '693 indicates that barley may contain the amylose extender gene, one cannot get the amylose extender dull combination without employing corn.

The '693 patent states at column 3 that the use of starches from plants with the amylose extender dull genotype is taught in U.S. Patents 5,497,586; 5,260,076 (Exh. 11); 5,120,562

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(Exh. 12); 5,035,912 (Exh. 13) and 4,790,997 (Exh. 14). The reference to Patent 5,497,586 is evidentially a typographical error or a misprint, since the 5,497,586 patent is directed to a framed glazing unit. Patent 5,260,076 (Exh. 11), like the '693 patent itself, indicates that while the amylose extender gene is present in maize and barley, it indicates only maize for the dull gene and the sugary 2 gene. Thus as a practical matter, the starch referred to is corn starch. (John Stevens Decl., par. 27.)

Patent 5,120,562 (Exh. 12) relates to a starch batter, and states that:

"Any plant that produces edible starch and can be crossbred to produce a plant that is an aedu [amylose extender dull] **homozygous** genotype may be used to provide the aedu starch. Plants that produce edible aedu starch are obtained not only by standard plant cross-breeding techniques by also by moving the aeaedudu genotype to another portion of the plant genome by translocation, inversion or other methods of chromosome engineering. The preferred plant source is maize." (Col. 2, lines 1-9).

Thus as above, this reference refers as a practical matter to corn starch. (John Stevens Decl., par. 28.)

Patent 5,035,912 (Exh. 13) discloses a starch jelly candy which uses an amylose extender dull starch (aedu) and a dull sugary 2 starch (dusu2) (column 3, lines 57-67). The patent does not indicate what specific plants can be used to obtain such starches, but refers back to Patents 4,790,997 and 4,792,458. (John Stevens Decl., par. 29.)

Patent 4,790,997 (Exh. 14) relates to food stuffs containing starch having the amylose extender dull genotype, but makes the same comment as the '693 patent to the effect that while the amylose extender mutant gene is present in maize and barley, the dull genotype is present only in maize. As with the other references above, it states that "maize is the preferred plant source." (John Stevens Decl., par. 30.)

Thus, all of the above patents, including the '693 patent, support the experience of John Stevens to the effect that a starch having the amylose extender dull genotype or the dull sugary 2 genotype is a corn starch. Patent 4,792,458 (Exh. 15) also supports this conclusion, in that it discloses foodstuffs containing such starches, with maize being indicated as the preferred plant source. However, the '458 patent does state that both the sugary 2 and the

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dull mutant genes can be found in barely and sorghum, as well as maize. It also states that the sugary 2 genotype may also be found in rice. Thus, since the '458 patent suggests that a crossbred or modified starch containing the amylose extender dull genotype or the dull sugary 2 genotype could at least theoretically be obtained from a plant source other than maize, Applicants have amended all of the independent claims to specify that the coatings used are not only substantially free of corn starch, but also substantially free of the type of hybrid or genetically modified starches which contain either the dull sugary 2 genotype or the amylose extender dull genotype.

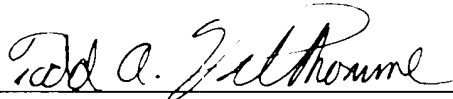
As discussed with the Examiner, Applicants are also submitting new pages 12-15 for the application, for the purpose of identifying the examples in a manner which is consistent with the description of them. Thus, reference to "Control 1," "Control 2," "Test 1" and "Test 2" have been deleted, and replaced with "Examples 1-4," with it being made clear that "Example 1" is a "prior art comparative example."

Applicants appreciate that Examiner Tran will want to do additional prior art searching. It is respectfully submitted that absent a finding of more pertinent prior art, the claims of this application are now in condition for allowance. Such action is respectfully solicited.

Respectfully submitted,

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